FEASIBILITY STUDY

Hickory-Longview, Northwest Loop, From
33rd Street at I-40 to Airport Road to US 321,
Catawba County
U-2528

Prepared by
Planning and Research Branch
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I. DESCRIPTION

This report covers a preliminary study of the proposed Northwest Loop for Hickory and Longview in Catawba County. As shown on the attached maps, this study extends from the I-40/33rd Street grade separation to the proposed Airport Road north of the Hickory Municipal Airport. The project is approximately 3.8 miles in length, and appears in the 1990-1996 Transportation Improvement Program (T.I.P.) for feasibility study and/or right-of-way protection. It is not currently funded.

II. PURPOSE OF PROJECT

The overall purpose of this project is to provide a more direct access and improved roadway conditions to the Longview area and to the Hickory Municipal Airport (and eventually to US 321) from Interstate 40. The predominant access routes to these areas presently are available via two existing interchanges on I-40: SR 1002 to the west and US 321 to the east of 33rd St. Neither of these routes has a direct connection to the airport, each utilizing numerous two-lane roadways and turns to complete the connection to the airport and Longview.

The intended thoroughfare plan alignment for the proposed loop was to utilize the following routes: An I-40 interchange at 33rd St. S.W., 33rd St. S.W., 1st Ave. S.W., 27th St. N.W., and 8th Ave. N.W. to proposed Airport Road (being completed by the city, and tying into US 321).

Airport Road is currently under construction, and is anticipated to be completed in 1991. This route is being constructed as a 2-lane, 24-foot facility, with provision for future multi-laning. If the Hickory-Longview Loop project is funded, consideration should be given to widening Airport Road (particularly the section from the proposed loop to US 321) for capacity and multi-lane continuity purposes.

After field investigation and alignment study on aerial photographs, it was determined that due to large industrial development to the south, and the Southern Railway to the north (both of which closely parallel the pavement), widening of 1st Ave. S.W. is not feasible.

Therefore, in studying alternative alignments for the Northwest Loop, two alternates were developed. Each option is detailed below under Alternatives and Costs.

Existing Route Characteristics

Existing city and state roads considered in the development of the two alternate routes are: (1) 8th Ave. N.W. (SR 1307) from Airport Road to 27th St. N.W.; (2) 27th St. N.W. (also SR 1307) from 8th Ave. N.W. to 5th Ave. S.W.; (3) 33rd St. S.W. (SR 1124) from 1st Ave. S.W. to I-40. See Figure 2 for locations.

All of the studied roads have variable, 2-lane, 18 to 24-foot pavements with generally 4-foot unpaved shoulders. The only exceptions are short sections of 32-foot curbed width on 27th St. N.W. north of 1st Ave. S.W. and 4-lane, 44-foot curbed section on 2nd Ave. N.W. (SR 1306).

Existing right-of-way along the city streets varies from approximately 30 to 50 feet.

Traffic signals currently exist at:

27th St. N.W. and 1st Ave. S.W.
27th St. N.W. and 2nd Ave. N.W.

Speed limits along the studied routes are 35 mph.

Development along 27th St. N.W. and 8th Ave. N.W. is a heavy density mixture of residential and large commercial and industrial properties. Development on 33rd St. S.W. is primarily heavy density residential, with small commercial intermixed. On 34th St. N.W. the development is dense residential, while 2nd Ave. N.W. parallels the airport to the north, and a city park to the south.

There are two bridges on the project, both located on 33rd St. S.W. (SR 1124):

Bridge No.	Location	Length (Ft.)	Width (Ft.)	Age (Yrs.)	Rating (New=100)
30	US 70	157	21.8	43	47.8
32	I-40	271	68.0	15	95.8

Traffic Volumes and Capacity

Existing and projected traffic volumes for the studied routes are listed below. The approximate volumes projected for the year 2010 are based on the thoroughfare plan, with its attendant links in place.

	Vehicles Per Day (vpd)	
Route	1990	2010
8th Ave. N.W.	2100	8900
27th St. N.W.	2400	11,900
1st Ave. S.W.	8100	13,200
33rd St. S.W.	2200 (low) 3600 (high)	5,000 7,800

The estimated volumes for the year 2010 will require at minimum a four-lane cross section, with a five-lane section desirable where large volumes of left turns will be present.

Present capacity along the existing urban 2-lane route is approximately 8,000 vehicles per day.

III. ALTERNATIVES AND COSTS

Alternate 1 - Sections A, B, and D (3.1 miles).

This alignment includes a new location (Section B) in the area between 12th Ave. S.W. and 27th St. S.W.

Section A - From I-40 grade separation to 12th Ave. S.W. (0.6 mile). Widen 33rd St. S.W. (SR 1124) to 5-lane, 64-foot, curb and gutter section.

Section B - From 12th Ave. S.W. to 2nd Ave. N.W. (SR 1653) (1.5 miles). Widen existing 27th St. N.W. to 64-foot curb and gutter facility from 5th Ave. S.W. to 2nd Ave. N.W. Also, construct on new location a 64-foot curb and gutter facility from 5th Ave. S.W. to 12th Ave. S.W.

Section D - From 2nd Ave. N.W. to Airport Road (1.0 mile). Widen existing 27th St. N.W./8th Ave. N.W. (SR 1307), and construct on new location to provide a 5-lane, 64-foot, curb and gutter facility. The only exception to this cross section is a 5-lane, 55-foot minimum, curb and gutter facility beginning at 3rd Ave. N.W. and continuing for 1000 feet to the north. This reduction in width is recommended due to large industries closely bordering the pavement on each side.

I-40 Interchange - with 33rd St. S.W.
Convert the existing grade separation over I-40 to an interchange in this project, providing access to the airport and Longview. Relocation of approximately 2000 feet of SR 1294 would be required to clear the interchange ramps. The total estimated cost of the proposed interchange (included in the total cost estimate below) is $ 2,650,000, with $ 1,850,000 for construction cost, and $ 800,000 for right-of-way. No improvements to the existing bridge are required.

The total estimated cost of the recommended improvements is $ 13,600,000, including $ 7,000,000 for construction, and $ 6,600,000 for right-of-way. Cost estimates were prepared by the Preliminary Estimate Engineer and the Right-of-Way Branch.

Alternate 2 - Sections A, C, and D (3.8 miles).

Alternate 2 is similar to Alternate 1 except for Section C (2.2 miles) as shown on on Figure 2. Section C utilizes the existing alignments of 33rd St. S.W., 34th St. N.W., and 2nd Ave. N.W., with slight realignment at 1st Ave. S.W. to line up with 33rd St. with 34th St.

The proposed cross section for the Section C alignment would be a 5-lane, 64-foot curb and gutter width from 12th Ave. S.W. to 2nd Ave. N.W., and a 4-lane, 48-foot (absolute minimum 44-foot) curb and gutter section on 2nd Ave. N.W. from 34th St. N.W. to the existing 4-lane

section on SR 1306 as shown on Figure 2. A 4-lane section is recommended on 2nd Ave. due to the existing cross section to the east, and due to right-of-way restrictions imposed by the Longview Town Park to the south, and the airport to the north.

Bridge number 30 over US 70 would require replacement in this alternate to accommodate the 5-lane roadway proposed. It is anticipated that phased construction would be used to maintain traffic.

The total estimated cost of this alternative (including the interchange) is $ 12,200,000, including $ 7,300,000 for roadway construction, and $ 4,900,000 for right-of-way.

V. SELECTION OF RECOMMENDED ALTERNATE

Alternate 2 described above is the recommended alternate for the Hickory-Longview Northwest Loop. This is due to several factors, both economic and environmental.

The major advantages of Alternate 2 are lower overall cost, less disruption to existing development, utilization of existing US 70/33rd Street interchange, and conformance with the adopted thoroughfare plan.

The alignment for Alternate 1 is superior to that of Alternate 2, since it offers a more direct connection to the airport. Alternate 2 would have two 90 degree turns in the alignment. Also, due to the right-of-way constraints mentioned above, Alternate 2 would have a section of pavement (2nd Ave. N.W.) with a 4-lane cross section which could limit capacity in the future.

However, the alignment of Alternate 1 would require severe disruption of the neighborhoods along the new location segment, even though the route is more direct. Alternate 1 would displace 55 residences and 3 businesses, versus 25 and 1, respectively, for Alternate 2.

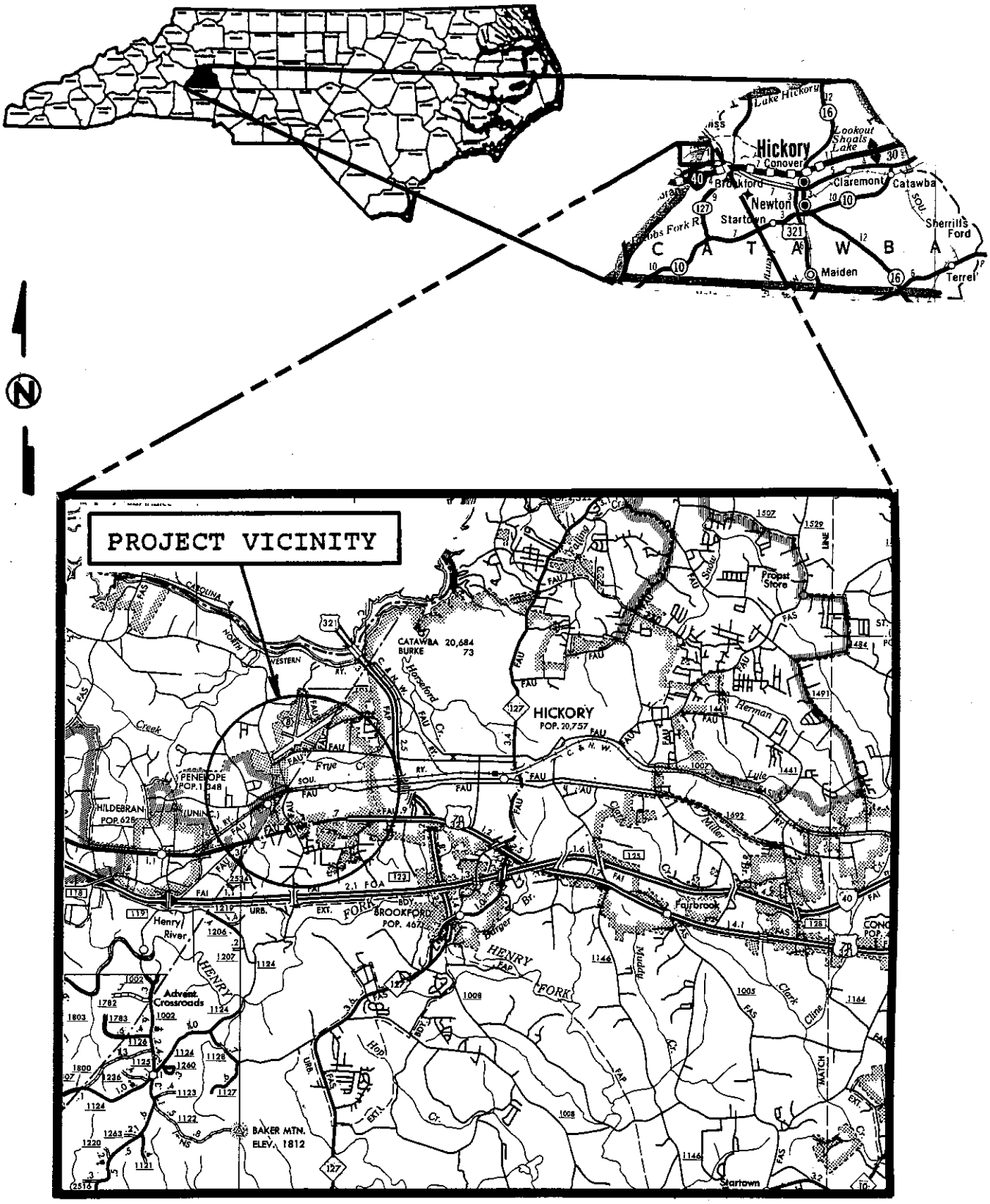
Another disadvantage of Alternate 1 is creation of a new at-grade intersection with US 70, causing potential safety and capacity problems. This alternate would require revision of the thoroughfare plan due to the new alignment and resulting revised functions of other affected links.

VI. OTHER COMMENTS

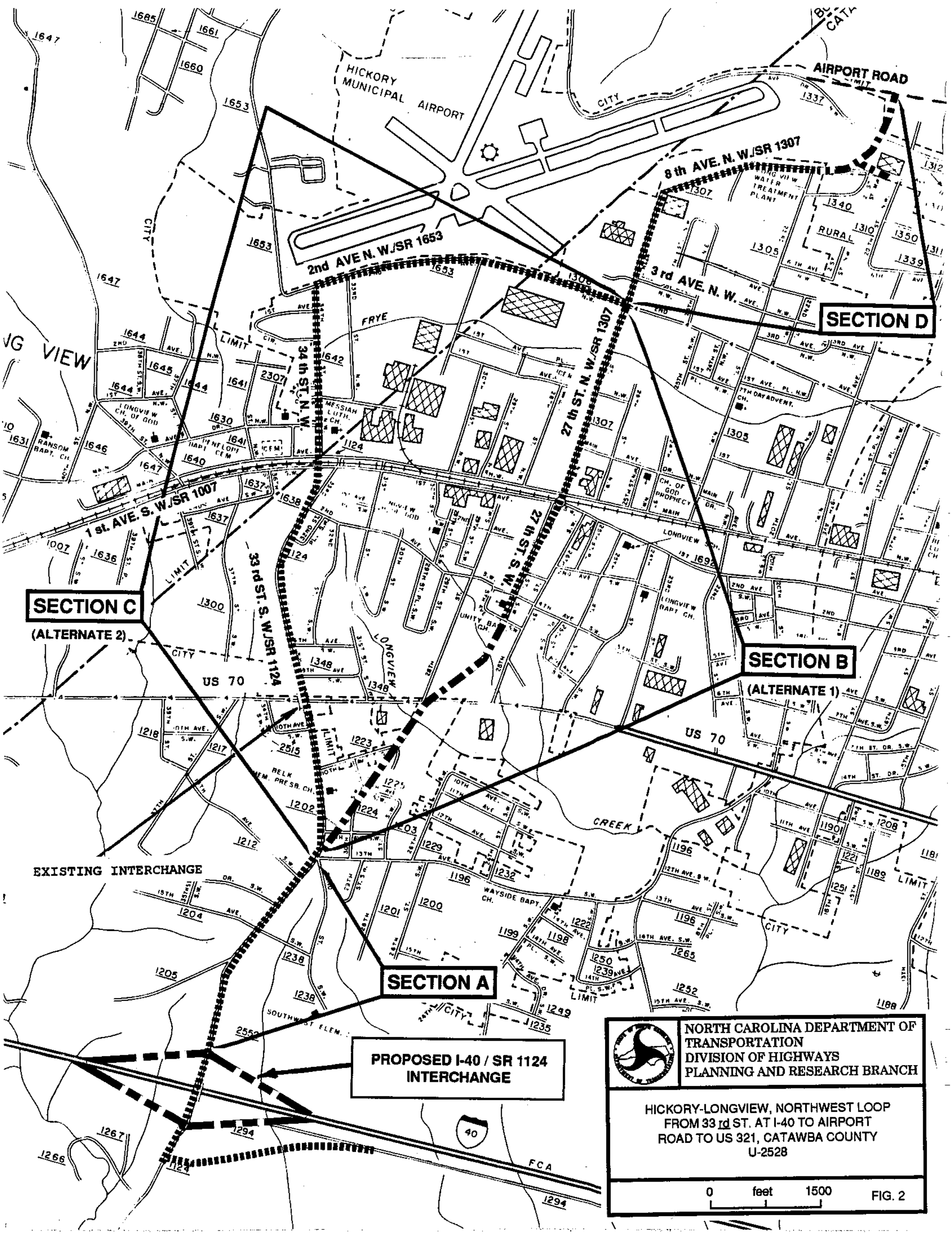
Possible negative environmental impacts of the recommended project are: (1) relocation of approximately 25 residences and 1 business; (2) increased noise levels for remaining properties; (3) loss of a small amount of woodlands.

If this project is to be implemented at a future date, all feasible alternatives and their associated impacts will have to be evaluated in a planning and environmental document prior to that time, and a final decision made as to the most appropriate improvement.

MH/plr



	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PLANNING AND RESEARCH BRANCH
	HICKORY-LONGVIEW NORTHWEST LOOP, FROM 33rd STREET AT I-40 TO AIRPORT ROAD TO US 321 CATAWBA COUNTY U-2528
	0 miles 2 FIG. 1

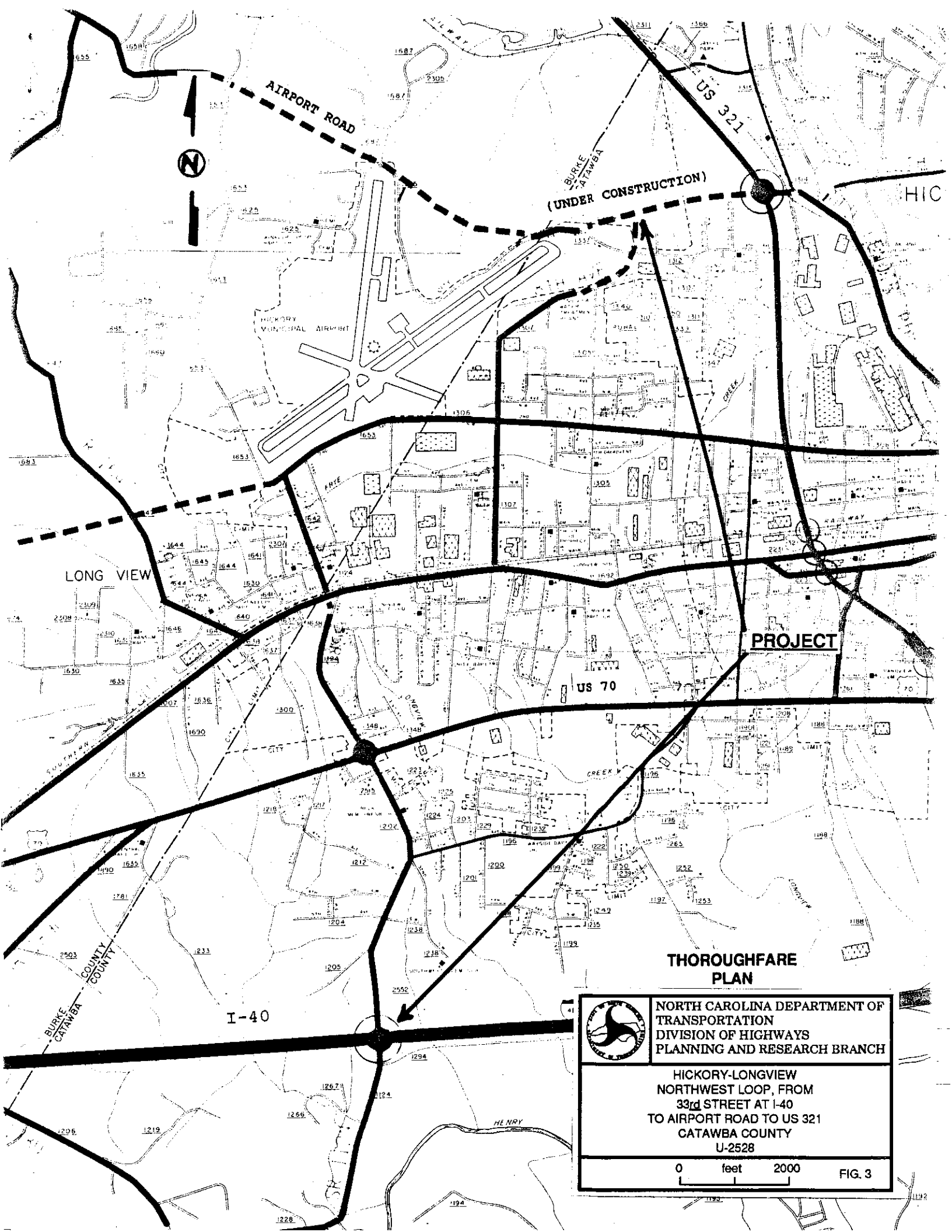


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND RESEARCH BRANCH

HICKORY-LONGVIEW, NORTHWEST LOOP
FROM 33 rd ST. AT I-40 TO AIRPORT
ROAD TO US 321, CATAWBA COUNTY
U-2528

0 feet 1500

FIG. 2



THOROUGHFARE PLAN

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND RESEARCH BRANCH

HICKORY-LONGVIEW
NORTHWEST LOOP, FROM
33rd STREET AT I-40
TO AIRPORT ROAD TO US 321
CATAWBA COUNTY
U-2528

0 feet 2000

FIG. 3